

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of:
Song Chen et al.

Application No.: 09/912,721

Confirmation No.: 5513

Filed: July 24, 2001

Art Unit: 2618

For: DISTRIBUTED MICRO INSTRUCTION SET
PROCESSOR ARCHITECTURE FOR HIGH-
EFFICIENCY SIGNAL PROCESSING

Examiner: J. J. Lee

AMENDED APPEAL BRIEF

MS Appeal Brief - Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Dear Sir:

This Amended Appeal Brief is in response to the Notification of Non-Compliant Appeal Brief dated March 28, 2008.

This Appeal Brief contains items under the following headings as required by 37 C.F.R. § 41.37 and M.P.E.P. § 1205.2:

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I. REAL PARTY IN INTEREST

The real party in interest for this appeal is: Infineon Technologies AG

II. RELATED APPEALS AND INTERFERENCES

There are no other appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Pursuant to the Office Action dated June 29, 2007, claims 1, 13-16, 19, 20, 24, 27, 31, and 42-45 remain rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (U.S. Patent No. 7,032, 223) in view of Cheng et al. (U.S. Patent No. 6,405,309; hereinafter "Cheng"). Claims 2-12, 17, 18, 21, 22, 25, 26, 28-30, 32-41, 46, and 47 are objected to, and claim 23 is allowed. Thus, claims 1-47 are pending in the application, with claims 1, 13-16, 19, 20, 24, 27, 31, and 42-45 on appeal.

IV. STATUS OF AMENDMENTS

Appellant filed an Response After Final Rejection on October 1, 2007. No claim amendments were presented.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Citations to portions of the application shown in italics below are examples of where the claimed features may be found in the application. These citations do not necessarily represent an exhaustive list of all portions of the applications providing support for the claimed features.

A. Independent claim 1:

Independent claim 1 is directed to a wireless communication system for hosting a plurality of processes, each process in the plurality of processes executed in accordance with a

communication protocol, the communication protocol including a set of functions. *[Abstract.]* The wireless communication system comprises a plurality of application specific instruction set processors (ASISPs) *[304; Figure 3]*, each ASISP capable of executing a subset of the set of functions included in the communication protocol; and a scheduler *[340; Figure 3]* connected to the plurality of ASISPs for scheduling the plurality of ASISPs in accordance with a time-slicing algorithm so that each process in the plurality of processes is supported by the wireless communication system. *[Page 10, line 22 - page 11, line 11; page 14, line 32 - page 16, line 26.]*

B. Dependent claim 13:

Dependent claim 13, which depends on independent claim 1, further recites that the communication protocol is a code division multiple access (CDMA) protocol *[page 6, lines 28-33]*.

C. Dependent claim 14:

Dependent claim 14, which depends on dependent claim 13, further recites that the communication protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA *[page 6, lines 28-33]*.

D. Dependent claim 15:

Dependent claim 15, which depends on independent claim 1, further recites that the communication protocol is a time division multiple access (TDMA) protocol *[page 6, lines 28-33]*.

E. Dependent claim 16:

Dependent claim 16, which depends on dependent claim 15, further recites that the communication protocol is IS-136 TDMA *[page 6, lines 28-33]*.

F. Dependent claim 19:

Dependent claim 19, which depends on independent claim 1, further recites that each process in the plurality of processes is an echo *[page 7, lines 4-9; page 11, line 36 – page 12, line 15]*.

G. Dependent claim 20:

Dependent claim 20, which depends on independent claim 1, further recites that each process in the plurality of processes uniquely corresponds to a different mobile hosted by the wireless communication system and each the process combines a plurality of echoes associated with the corresponding different mobile *[page 7, lines 4-9; page 11, line 36 – page 12, line 15]*.

H. Independent claim 24:

Independent claim 24 is directed to a method for hosting a communication process with a communication architecture in accordance with a communication protocol. *[Abstract.]* The method comprises allocating a plurality of application specific instruction set processors (ASISPs) in the architecture to support the communication process, each ASISP in the plurality of ASISPs capable of executing a subset of a set of functions defined by the communication protocol; and providing a centralized controller in the architecture for scheduling each the ASISP in the plurality of ASISPs in accordance with a scheduling scheme. *[Page 10, line 22 - page 11, line 11; page 14, line 32 - page 16, line 26.]*

I. Independent claim 31:

Independent claim 31 is directed to a method for hosting a plurality of processes in a wireless communication system, each process in the plurality of processes executed in accordance

with a communication protocol, the communication protocol including a set of functions. *[Abstract.]* The method comprises distributing a plurality of application specific instruction set processors (ASISPs), each ASISP capable of executing a subset of the set of functions included in the communication protocol; and providing a scheduler for scheduling the plurality of ASISPs in accordance with a time-slicing algorithm so that each process in the plurality of processes is supported by the wireless communication system. *[Page 10, line 22 - page 11, line 11; page 14, line 32 - page 16, line 26.]*

J. Dependent claim 42:

Dependent claim 42, which depends on independent claim 31, further recites that the communication protocol is a code division multiple access (CDMA) protocol *[page 6, lines 28-33]*.

K. Dependent claim 43:

Dependent claim 43, which depends on dependent claim 42, further recites that the communication protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA *[page 6, lines 28-33]*.

L. Dependent claim 44:

Dependent claim 44, which depends on independent claim 31, further recites that each process in the plurality of processes is an echo *[page 7, lines 4-9; page 11, line 36 – page 12, line 15]*.

M. Dependent claim 45:

Dependent claim 45, which depends on independent claim 31, further recites that each process in the plurality of processes uniquely corresponds to a different mobile hosted by the wireless

communication system and each the process combines a plurality of echoes associated with the corresponding different mobile *[page 7, lines 4-9; page 11, line 36 – page 12, line 15]*.

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

A. Whether claims 1, 13-16, 19, 20, 24, 27, 31, and 42-45 were erroneously rejected under 35 U.S.C. 103(a) as being unpatentable over Liu (U.S. Patent No. 7,032, 223) in view of Cheng et al. (U.S. Patent No. 6,405,309; hereinafter "Cheng").

VII. ARGUMENT

A. Claims 1, 13-16, 19, 20, 24, 27, 31, and 42-45 were erroneously rejected under 35 U.S.C. 103(a) as being unpatentable over Liu in view of Cheng.

1. Independent claim 1:

Independent claim 1 is directed to a wireless communication system.

Liu is directed to a completely different system from the present invention. That is, Liu is directed to an XDSL system, which refers collectively to all types of digital subscriber lines. DSL technologies use sophisticated modulation schemes to pack data onto copper wires, and thus is a wireline system. Wireless and wireline systems have very different architectures, and features of one system are not applicable to the other. Liu is therefore not applicable to the claims of the present invention.

Because Liu is directed to a completely different system from the present invention, there are many claimed features not taught or suggested by Liu. For example, Liu does not suggest a plurality of processes executed in accordance with a wireless communication protocol, as recited in independent claim 1. A wireless communication protocol is a set of rules governing the format of wireless communications between a mobile phone and a base station. Examples of wireless communication protocols include TDMA (time division multiple access) and CDMA (code division multiple access). Liu does not in any way relate to such protocols. Again, Liu discusses XDSL systems, which are landline rather than wireless system.

Contrary to the Examiner's position in the Office Action, Cheng does not make up for Liu's deficiency. Cheng merely mentions "wireless connections" (col. 3, line 14) among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Cheng is not at all related to the wireless communication systems of the present invention.

Thus, independent claim 1 is patentable over the applied references for at least this reason.

Further, Liu does not teach or suggest a plurality of application specific instruction set processors (ASISPs), as also recited in independent claim 1.

An ASISP is a specific type of device that is different from a dedicated hardware architecture and different from a software architecture (programmable CPU based). An ASISP takes the best features of both of these architectures and combines them into a single architecture.

The application specific (ASIC) hardware blocks in Liu (col. 5, lines 62-63), to which the Examiner refers, are not the same as an ASIP.

According to Wikipedia, an ASIC is "an integrated circuit (IC) customized for a particular use, rather than for general-purpose use." On the other hand, as also defined by Wikipedia, an ASIP, which is also known as an ASISP, is a methodology which "represents a compromise between ASIC and general purpose CPU." Thus, ASICs are clearly not the very specific type of processor known as ASISPs.

Thus, independent claim 1 is patentable over the applied references for this reason additional reason.

2. Dependent claim 13:

Dependent claim 13 recites a wireless communication protocol, that is, CDMA. Since Liu does not suggest a wireless system, it cannot suggest the specific wireless protocol, CDMA, as

recited. Cheng does not make up for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 13 is therefore patentable over the applied references.

3. Dependent claim 14:

Dependent claim 14 recites various wireless protocols such as IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA. Since Liu does not suggest a wireless system, it cannot suggest the specific wireless protocols as recited. Cheng does not make up for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 14 is therefore patentable over the applied references.

4. Dependent claim 15:

Dependent claim 15 recites a wireless protocol, that is, TDMA. Since Liu does not suggest a wireless system, it cannot suggest the specific wireless protocol, TDMA, as recited. Cheng does not make up for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 15 is therefore patentable over the applied references.

5. Dependent claim 16:

Dependent claim 16 recites a wireless protocol, that is, IS-136 TDMA. Since Liu does not suggest a wireless system, it cannot suggest the specific wireless protocol, IS-136 TDMA, as recited. Cheng does not make up for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its

unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 16 is therefore patentable over the applied references.

6. Dependent claim 19:

Dependent claim 19 recites an “echo.” As explained in paragraph 52 of the published application, “The term echo is also used to refer to a multipath. Echoes are caused when the signal emitted from a transmitter ‘bounces’ off an object and arrives at the receiver through an alternate, delayed path.” Echo is a concept associated with wireless communication systems as claimed, rather than wireline communication systems, as disclosed in the applied references. Thus, dependent claim 19 is patentable over the applied references.

7. Dependent claim 20:

Dependent claim 20 recites a “plurality of echoes.” As explained in paragraph 52 of the published application, “The term echo is also used to refer to a multipath. Echoes are caused when the signal emitted from a transmitter ‘bounces’ off an object and arrives at the receiver through an alternate, delayed path.” Echo is a concept associated with wireless communication systems as claimed, rather than wireline communication systems, as disclosed in the applied references. Thus, dependent claim 20 is patentable over the applied references.

8. Independent claim 24:

Liu does not teach or suggest a plurality of application specific instruction set processors (ASISPs), as recited in independent claim 24.

An ASISP is a specific type of device that is different from a dedicated hardware architecture and different from a software architecture (programmable CPU based). An ASISP takes the best features of both of these architectures and combines them into a single architecture.

The application specific (ASIC) hardware blocks in Liu (col. 5, lines 62-63), to which the Examiner refers, are not the same as an ASIP.

According to Wikipedia, an ASIC is "an integrated circuit (IC) customized for a particular use, rather than for general-purpose use." On the other hand, as also defined by Wikipedia, an ASIP, also known as an ASISP, is a methodology which "represents a compromise between ASIC and general purpose CPU." Thus, ASICs are clearly not the very specific type of processor known as ASISPs.

Thus, independent claim 24 is patentable over the applied references for at least this reason.

9. Independent claim 31:

Independent claim 31 is directed to a "method for hosting a plurality of processes in a wireless communication system."

Liu is directed to a completely different system from the present invention. That is, Liu is directed to an XDSL system, which refers collectively to all types of digital subscriber lines. DSL technologies use sophisticated modulation schemes to pack data onto copper wires, and thus is a wireline system. Wireless and wireline systems have very different architectures, and features of one system are not applicable to the other. Liu is therefore not applicable to the claims of the present invention.

Because Liu is directed to a completely different system from the present invention, there are many claimed features not taught or suggested by Liu. For example, Liu does not suggest a plurality of processes executed in accordance with a wireless communication protocol, as recited in independent claim 31. A wireless communication protocol is a set of rules governing the format of wireless communications between a mobile phone and a base station. Examples of wireless communication protocols include TDMA (time division multiple access) and CDMA (code division multiple access). Liu does not in any way relate to such protocols. Again, Liu discusses XDSL systems, which are landline rather than wireless system.

Contrary to the Examiner's position in the Office Action, Cheng does not make up for Liu's deficiency. Cheng merely mentions "wireless connections" (col. 3, line 14) among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Cheng is not at all related to the wireless communication systems of the present invention.

Thus, independent claim 31 is patentable over the applied references for at least this reason.

Further, Liu does not teach or suggest a plurality of application specific instruction set processors (ASISPs), as also recited in independent claim 31.

An ASISP is a specific type of device that is different from a dedicated hardware architecture and different from a software architecture (programmable CPU based). An ASISP takes the best features of both of these architectures and combines them into a single architecture.

The application specific (ASIC) hardware blocks in Liu (col. 5, lines 62-63), to which the Examiner refers, are not the same as an ASIP.

According to Wikipedia, an ASIC is "an integrated circuit (IC) customized for a particular use, rather than for general-purpose use." On the other hand, as also defined by Wikipedia, an ASIP, also known as an ASISP, is a methodology which "represents a compromise between ASIC and general purpose CPU." Thus, ASICs are clearly not the very specific type of processor known as ASISPs.

Thus, independent claim 31 is patentable over the applied references for this reason additional reason.

10. Dependent claim 42:

Dependent claims 42 recites a wireless protocol, that is, CDMA. Since Liu does not suggest a wireless system, it cannot such the specific wireless protocol as recited. Cheng does not make up

for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 42 is therefore patentable over the applied references.

11. Dependent claim 43:

Dependent claim 43 recites various wireless protocols such as IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA. Since Liu does not suggest a wireless system, it cannot such the specific wireless protocols as recited. Cheng does not make up for Liu's deficiency; as mentioned above, Cheng merely mentions "wireless connections" among its boilerplate list of possible communication links to be used in its unrelated system for deploying smaller Microsoft Windows applications (col. 1, lines 9-11). Dependent claim 43 is therefore patentable over the applied references.

12. Dependent claim 44:

Dependent claim 44 recites an "echo." As explained in paragraph 52 of the published application, "The term echo is also used to refer to a multipath. Echoes are caused when the signal emitted from a transmitter 'bounces' off an object and arrives at the receiver through an alternate, delayed path." Echo is a concept associated with wireless communication systems as claimed, rather than wireline communication systems, as disclosed in the applied references. Thus, dependent claim 44 is patentable over the applied references.

13. Dependent claim 45:

Dependent claim recites a "plurality of echoes." As explained in paragraph 52 of the published application, "The term echo is also used to refer to a multipath. Echoes are caused when the signal emitted from a transmitter 'bounces' off an object and arrives at the receiver through an alternate, delayed path." Echo is a concept associated with wireless communication systems as

claimed, rather than wireline communication systems, as disclosed in the applied references. Thus, dependent claim 45 is patentable over the applied references.

VIII. CLAIMS

A copy of the claims involved in the present appeal is attached hereto in the Claims Appendix.

IX. EVIDENCE

As indicated in the Evidence Appendix, no evidence pursuant to §§ 1.130, 1.131, or 1.132 or entered by or relied upon by the examiner is being submitted.

X. RELATED PROCEEDINGS

As indicated in the Related Proceedings Appendix, no related proceedings are referenced in II. above.

Please charge any fee, except for the Issue Fee, that may be necessary for the continued pendency of this application to our Deposit Account No. 50-2215.

Dated: April 8, 2008

Respectfully submitted,



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CLAIMS APPENDIX

Claims 1, 13-16, 19, 20, 24, 27, 31, and 42-45 are on Appeal

Claim 1. A wireless communication system for hosting a plurality of processes, each process in the plurality of processes executed in accordance with a communication protocol, the communication protocol including a set of functions, the wireless communication system comprising:

a plurality of application specific instruction set processors (ASISPs), each ASISP capable of executing a subset of the set of functions included in the communication protocol; and

a scheduler connected to the plurality of ASISPs for scheduling the plurality of ASISPs in accordance with a time-slicing algorithm so that each process in the plurality of processes is supported by the wireless communication system.

Claim 13. The wireless communication system of claim 1 wherein the communication protocol is a code division multiple access (CDMA) protocol.

Claim 14. The wireless communication system of claim 13 wherein the communication protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA.

Claim 15. The wireless communication system of claim 1 wherein the communication protocol is a time division multiple access (TDMA) protocol.

Claim 16. The wireless communication system of claim 15 wherein the communication protocol is IS-136 TDMA.

Claim 19. The wireless communication system of claim 1 wherein each process in the plurality of processes is an echo.

Claim 20. The wireless communication system of claim 1 wherein each process in the plurality of processes uniquely corresponds to a different mobile hosted by the wireless communication system and each the process combines a plurality of echoes associated with the corresponding different mobile.

Claim 24. A method for hosting a communication process with a communication architecture in accordance with a communication protocol, comprising:

allocating a plurality of application specific instruction set processors (ASISPs) in the architecture to support the communication process, each ASISP in the plurality of ASISPs capable of executing a subset of a set of functions defined by the communication protocol; and

providing a centralized controller in the architecture for scheduling each the ASISP in the plurality of ASISPs in accordance with a scheduling scheme.

Claim 27 (Original): The method of claim 24, wherein the scheduling scheme is a time-slicing algorithm that allocates computational tasks to each ASISP in the plurality of ASISPs in a time-sliced fashion.

Claim 31. A method for hosting a plurality of processes in a wireless communication system, each process in the plurality of processes executed in accordance with a communication protocol, the communication protocol including a set of functions, comprising:

distributing a plurality of application specific instruction set processors (ASISPs), each ASISP capable of executing a subset of the set of functions included in the communication protocol; and

providing a scheduler for scheduling the plurality of ASISPs in accordance with a time-slicing algorithm so that each process in the plurality of processes is supported by the wireless communication system.

Claim 42. The method of claim 31 wherein the communication protocol is a code division multiple access (CDMA) protocol.

Claim 43. The method of claim 42 wherein the communication protocol is selected from the group consisting of IS-95 CDMA, IS-95B CDMA, CDMA TIA IS2000, TIA IS 2000A, wideband CDMA (WCDMA), cdma2000, and ARIB WCDMA.

Claim 44. The method of claim 31 wherein each process in the plurality of processes is an echo.

Claim 45. The method of claim 31 wherein each process in the plurality of processes uniquely corresponds to a different mobile hosted by the wireless communication system and each the process combines a plurality of echoes associated with the corresponding different mobile.

EVIDENCE APPENDIX

All evidence is in the record.

RELATED PROCEEDINGS APPENDIX

There are no related proceedings for this matter.